

Equivalent Fractions

NAEP 2005 Strand: Number Properties and Operations

Topic: Number Operations

Equivalent fractions are _____

A fraction is in when the only common factor of the numerator and denominator is 1.

① Equivalent Fractions Write three fractions equivalent to $\frac{6}{9}$.

$\frac{6}{9} = \frac{\boxed{}}{\boxed{}}$ ← Multiply the numerator and denominator by 2.

$\frac{6}{9} = \frac{\boxed{}}{\boxed{}}$

← Multiply the numerator and denominator by 3.

$$\frac{6}{9} = \frac{\boxed{}}{\boxed{}}$$

← Divide the numerator and denominator by 3.

So $\frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$

1. Write two fractions equivalent to each fraction.

a. $\frac{4}{10}$

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b. 5/8

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Examples

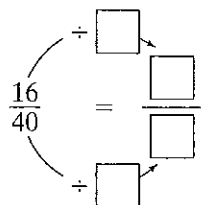
② **Simplify a Fraction Using the GCF** Write $\frac{16}{40}$ in simplest form.

16: , , , ,

40: , , , , , , ,

← List the factors for the numerator and denominator.
Find the greatest common factor.

The GCF of 16 and 40 is .



← Divide the numerator and denominator by the GCF.

The fraction $\frac{16}{40}$ written in simplest form is $\frac{\text{ } \text{ }}{\text{ } \text{ }}$.

③ **Using Prime Factorization** A store stocks 12 types of blue pens, 6 types of black pens, and 2 types of red pens. In simplest form, what fraction of the types of pens are blue?

Add to find the total number of pen types to find the denominator:

$12 + 6 + 2 = \text{ } \text{ }$. Write the fraction.

$\frac{\text{ } \text{ }}{\text{ } \text{ }}$

← number of types of blue pens

← total number of types of pens

$\frac{12}{20} = \frac{\text{ } \times \text{ } \times \text{ }}{\text{ } \times \text{ } \times \text{ }}$

← Write the prime factorization of the numerator and the denominator.
Divide the common factors.

$\frac{\cancel{\text{ } \times \cancel{\text{ } \times \text{ }}}{\cancel{\text{ } \times \cancel{\text{ } \times \text{ }}} \times \text{ } \text{ }}$

← Divide the common factors.

So $\frac{\text{ } \text{ }}{\text{ } \text{ }}$ of the types of pens are blue pens.

Quick Check

2. Write $\frac{24}{32}$ in simplest form.

3. In simplest form, what fraction of the types of pens in Example 3 are red pens?

Practice 4-5

Equivalent Fractions

Name the fractions modeled and determine if they are equivalent.



By what number can you multiply the numerator and denominator of the first fraction to get the second fraction?

4. $\frac{2}{3}, \frac{4}{6}$

5. $\frac{3}{8}, \frac{15}{40}$

6. $\frac{7}{10}, \frac{42}{60}$

By what number can you divide the numerator and denominator of the first fraction to get the second fraction?

7. $\frac{6}{8}, \frac{3}{4}$

8. $\frac{70}{80}, \frac{7}{8}$

9. $\frac{15}{60}, \frac{1}{4}$

Write two equivalent fractions for each fraction.

10. $\frac{3}{10}$ _____

11. $\frac{7}{8}$ _____

12. $\frac{5}{6}$ _____

13. $\frac{15}{20}$ _____

14. $\frac{8}{12}$ _____

15. $\frac{15}{45}$ _____

State whether each fraction is in simplest form. If it is not, write it in simplest form.

16. $\frac{15}{35}$ _____

17. $\frac{22}{55}$ _____

18. $\frac{34}{36}$ _____

19. $\frac{19}{57}$ _____

20. $\frac{27}{54}$ _____

21. $\frac{30}{41}$ _____

Solve.

22. A library has 10 camping guide books, 4 fishing guide books, and 6 hiking guide books. In simplest form, what fraction of the guide books are camping or hiking guide books?
- _____